



*Simplex Ethernet Clock*  
*Power Over Ethernet (POE)*



**Installation Manual**



**Installation Manual  
Ethernet Clock  
Power Over Ethernet (POE)  
Inova Part Number: 715437**

*While reasonable efforts have been taken in the preparation of this document to insure its accuracy, Simplex assumes no liability resulting from any errors or omissions in this manual, or from the use of the information contained herein.*

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# Section 1 – Introduction and Network Planning

Simplex PoE clocks operate with the IEEE standard for Power Over Ethernet. The power for the clock is provided by a PoE injector or a PoE Switch.

After you connect the clock, it will display the IP address associated with the device.

The Simplex Ethernet clocks are linked together only in that they are connected to the network and use the same time source. By updating the clocks from the same time source, the clocks will remain accurate to 200ms of that source.

There are four things that the clocks need from the network

1. A standard Ethernet connection using minimum CAT5 Cabling minimum up to 300' from the switch/router
2. Power over Ethernet using the IEEE 802.3AF standard (48v DC). If the switch does not have this feature, it can be added with single or multi port midspan injectors at the switch.
3. An IP address, fixed or provided by network DHCP service
4. SNTP (Simple Network Time Protocol) service from an internal of external NTP server.

Section 2 contains System Integration information.

Sections 3, 4, and 5 cover the physical installation.

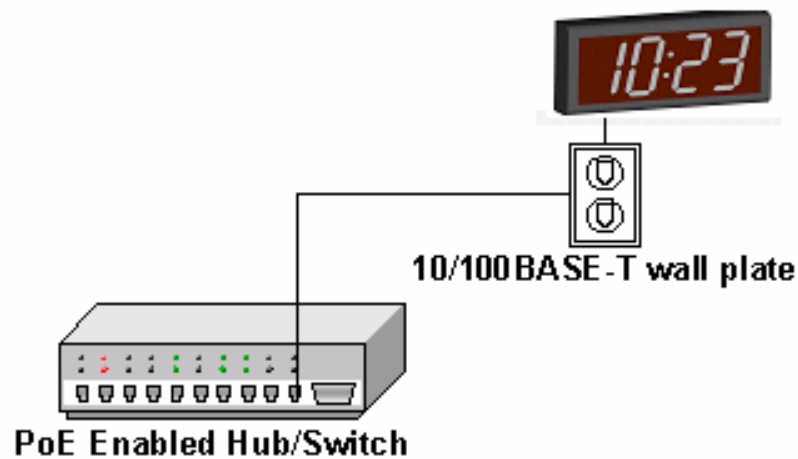
Section 6 contains instructions on how to configure your device using Telnet commands.

## Section 2: System Integration

The diagrams below illustrate three options for system integration with your PoE-capable LAN.

### PoE-Enabled Hub/Switch

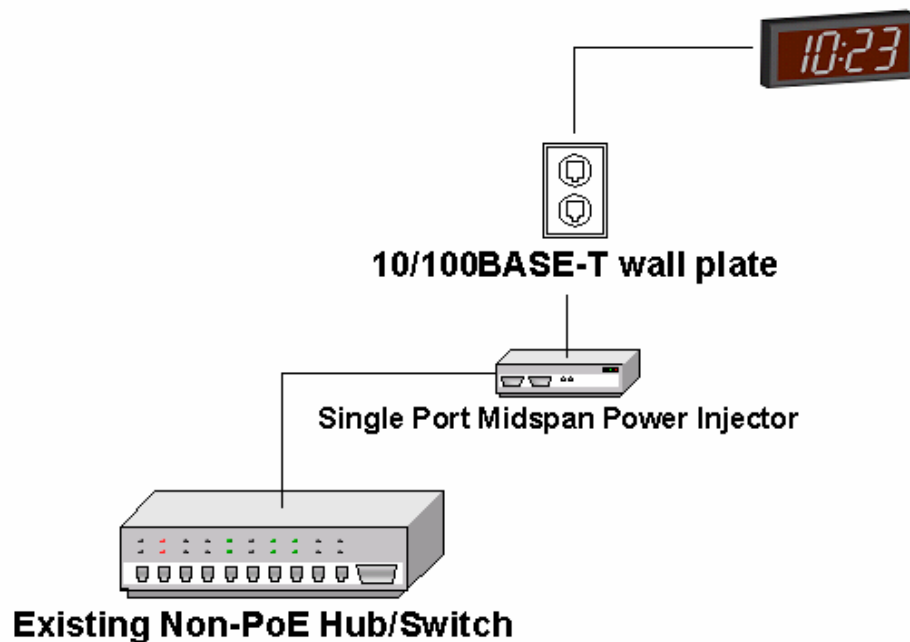
In the simplest example, the Ethernet is already PoE-enabled (802.3AF) and is supporting PoE devices such as IP phones. Simply mount the **Simplex Ethernet Clock** and connect it to a PoE-capable wall jack.



## Non-PoE Enabled Hub/Switch and Single Simplex Ethernet Clock

If the Ethernet is not currently PoE-enabled and is going to support a single **Simplex Ethernet Clock**, a Single Port Midspan Power Injector must be added to the 10/100 BaseT Ethernet LAN.

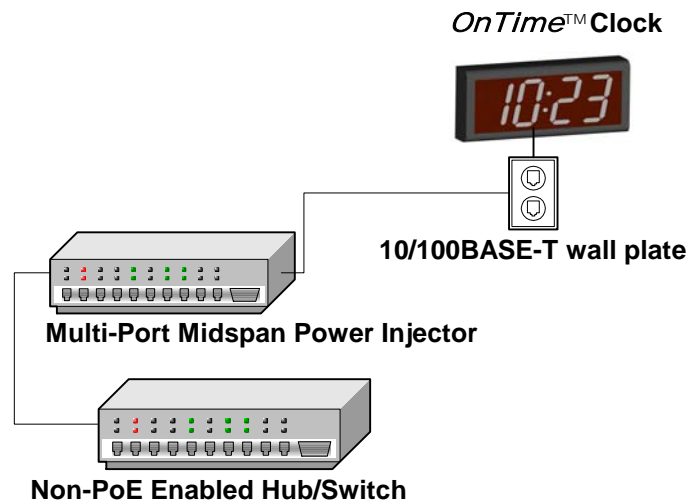
Note: The power injector must be fully compatible with IEEE 802.3af.



## Non-PoE-Enabled Hub/Switch and Multiple Simplex Ethernet Clocks

If the Ethernet is not currently PoE-enabled and is going to support the Simplex Ethernet Clocks, a single or multiple Port Midspan Power Injector must be added to the 10/100 BaseT Ethernet LAN.

Note: The power injector must be fully compatible with IEEE 802.3af.



## Recording Location, Static IP Address, and Host Name

In order to make the management of your **Simplex Ethernet Clock** system as easy as possible, Simplex recommends that you record the Clock ID, Location, IP Address, and Host Name for each unit in the system as it is installed.

The Host Name will be visible in most DHCP servers. It should describe the location so that the IP Address of a particular clock will be easy to locate by matching up the Host Name. For example:

3rdFlrConfRm

Please see page 53 in the Simplex Ethernet Clock Owner's Manual for the procedure that can be used to change the Host Name of the **Simplex Ethernet Clock**.

CLOCK ID#	LOCATION	IP ADDRESS	Host Name



<b>CLOCK ID#</b>	<b>LOCATION</b>	<b>IP ADDRESS</b>	<b>Host Name</b>

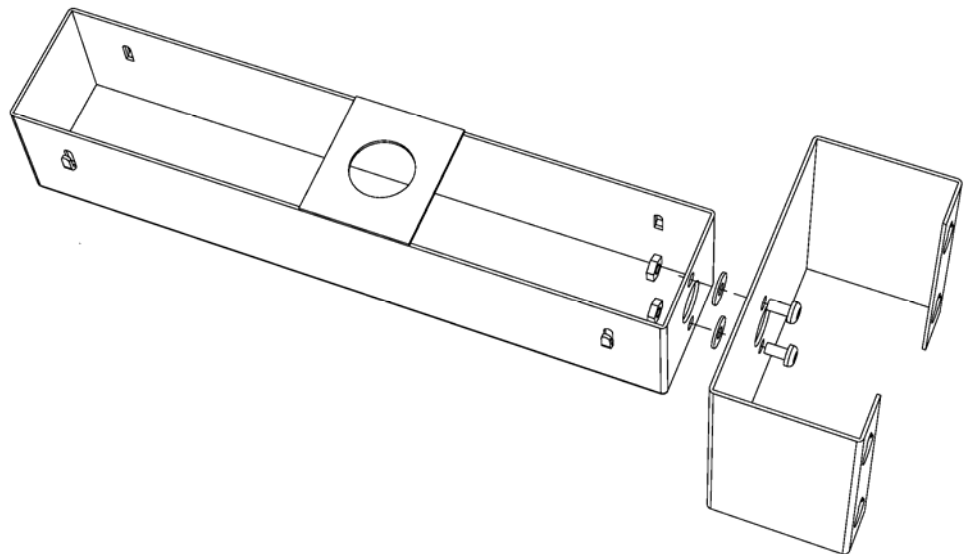
## Section 3: Unpacking

The **Simplex Ethernet Clock** arrives fully assembled in a single package.

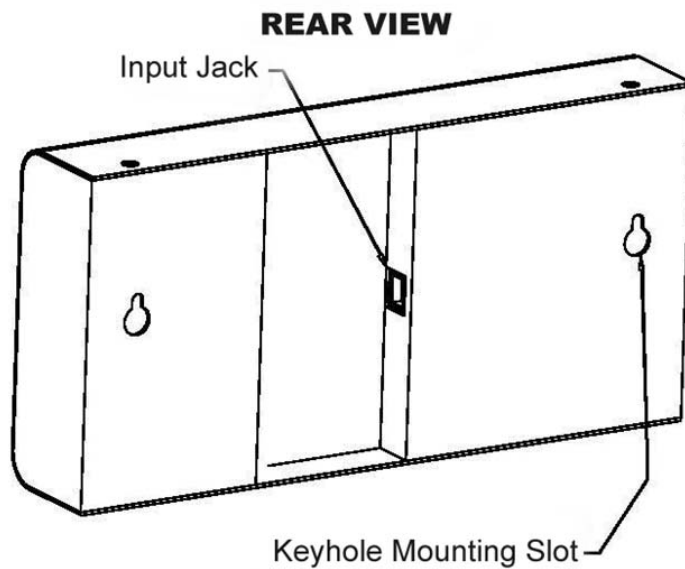
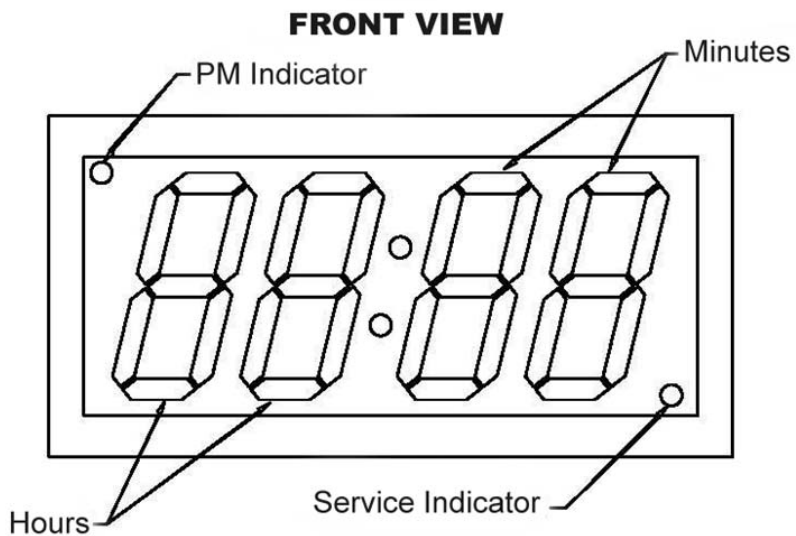
Inspect all items and report any missing or damaged items using the standard reporting process on the company web site.

Follow the directions in Section 4 for the desired mounting option.

A separate mounting kit, model ONT4KIT or ONT6KIT for cantilever or pendant mounting, is available. Unpack the mounting kit and check its contents against the illustration provided with the mounting kit. (Contact your local Simplex field office in the mounting kit is missing.)



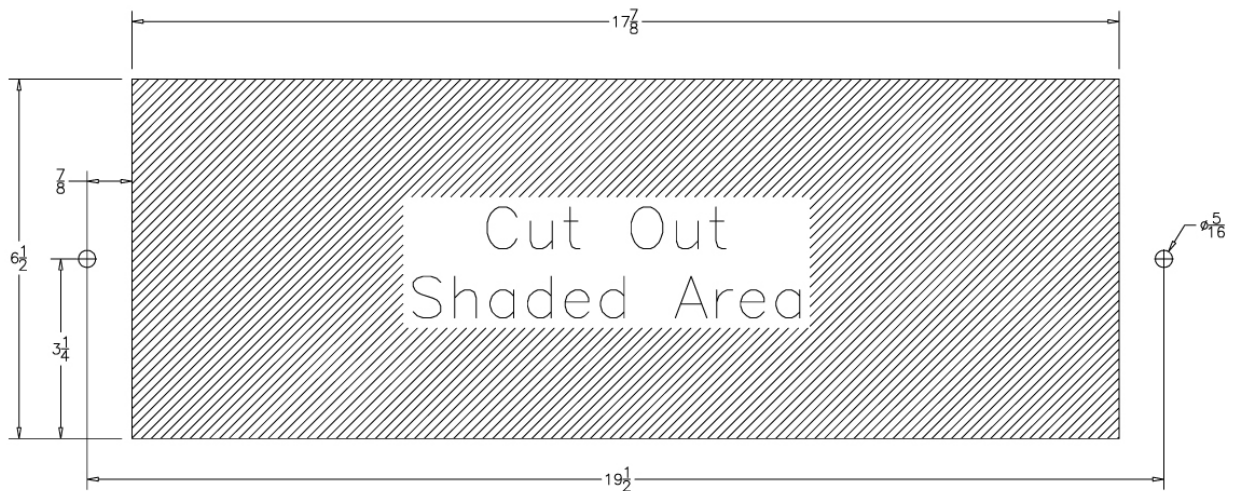
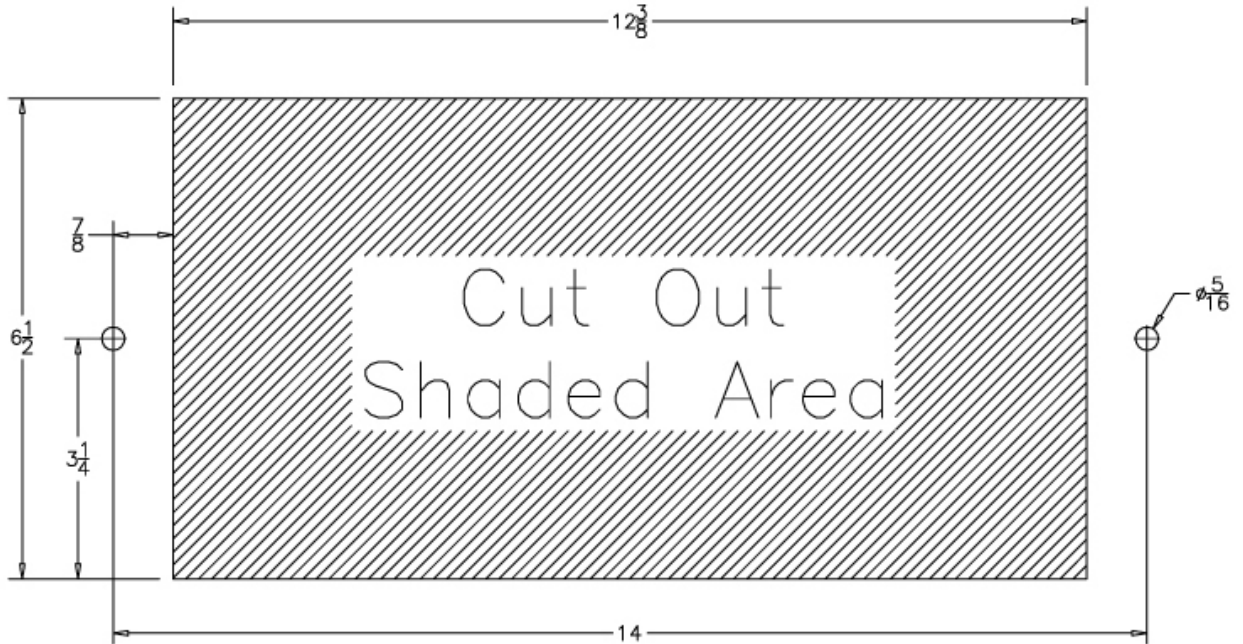
## Section 4: Installation Instructions



The **Simplex Ethernet Clock** is available in a variety of mounting configurations. Please consult the appropriate system documentation for your installation requirements.

## Surface Mounting

The following is a recommended procedure for surface mounting. No mounting kit is required.



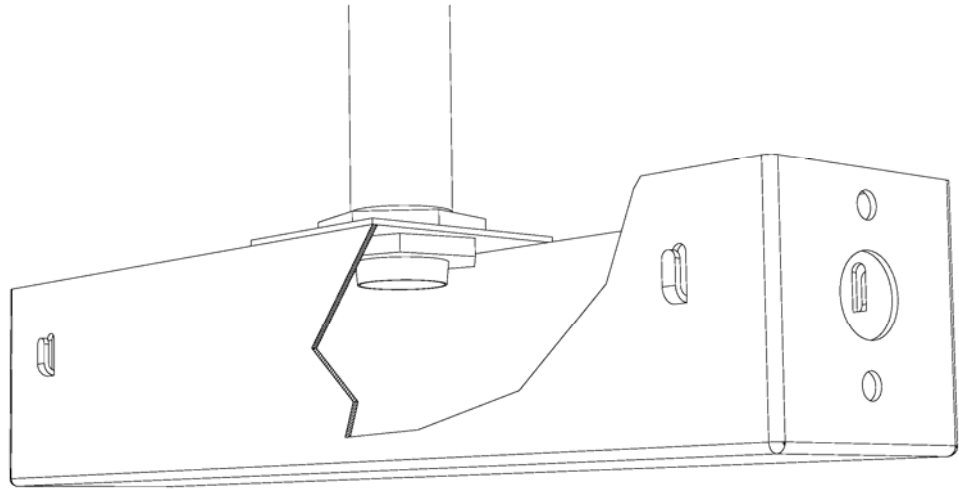
## Surface Mounting Procedure

1. Determine the clock mounting location.
2. Mark two points 10" (25.4 cm) apart, level and centered on the data cable outlet.
3. Insert two flat-head fasteners suitable for the wall surface at the marked points and tighten.
4. Withdraw the fasteners until there is a .1/16" (.16cm) gap between the mounting surface and the back of the fastener head.
5. Insert the data cable into the jack located at the back of the **Simplex Ethernet Clock**.
6. Position the keyhole slots located on the rear of the clock over the fastener heads.

Pull the clock slightly downwards until the unit is seated.

## Pendant Mounting – Single or Double

The following is a recommended procedure for pendant mounting. This procedure requires a mounting kit, (model ONT4 KIT for four digit clocks or ONT6 Kit for six digit clocks), and some additional hardware.



### PROCEDURE

Determine the clock mounting location.

The illustration above suggests a recommended mounting means for a pendant mount of one or more Simplex Ethernet Clocks. Supplement the ONT4 KIT or ONT6 Kit with two suitable locknuts and a length of  $\frac{3}{4}$  " (1.905 cm) pipe or conduit. If conduit is required, it's a good idea to measure and cut to length before beginning the installation.

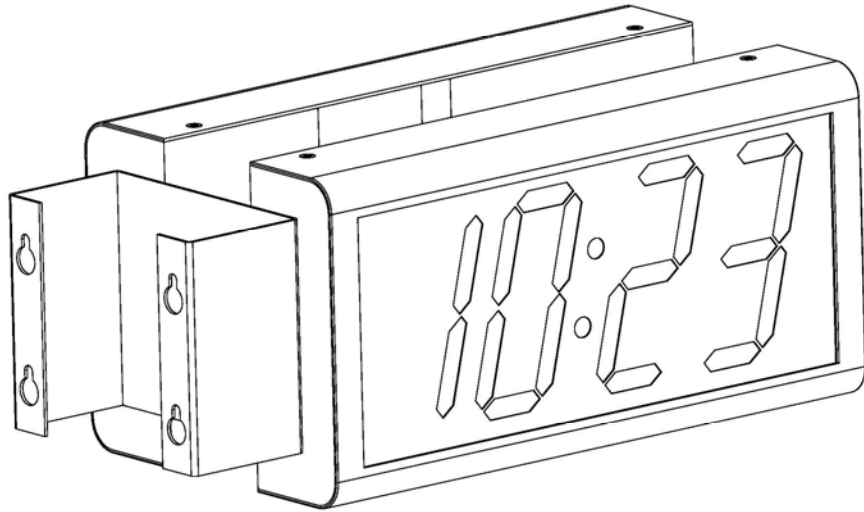
1. Mark the location where the clock assembly is to be mounted, making sure that the mounting means is located beneath the data cable outlet.
2. Assemble and tighten the locknuts and pipe length as shown above.
3. Insert enough data cable through the center hole of the mounting kit so that it protrudes 10 to 12 inches (30 cm). Securely attach the mounting means using fasteners suitable for the surface.
4. Lift the **Simplex Ethernet Clock** into position and insert the data cable into the jack located on the back of the clock.

5. Position the keyhole slots located on the rear of the clock over the mounting tabs.
6. Pull the clock slightly downwards until the unit is seated.

Repeat for the second clock if two clocks are being installed back-to-back.

## Cantilever Mounting – Single or Double

The following is a recommended procedure for cantilever mounting. This procedure requires a mounting kit, model ON4TKIT or ONT6KIT.



Determine the clock mounting location.

1. Using the template provided, mark the location where the clock is to be mounted, making sure the center is located over the data cable outlet.
2. Using a #2 Phillips screwdriver and a 3/8" (.952 cm) wrench, assemble the Ethernet Clock Mount (Simplex p/n 714755) and the Ethernet Clock Cantilever Wall Mount (Simplex p/n 714756) as shown in the illustration in Section 4 of this manual. Join the parts using the 2 screws, 2 washers, and 2 nuts provided. Make sure that the 2 washers are fitted between the Clock Mount and the Cantilever Wall Mount.
3. Insert enough data cable through the center hole of the mounting kit so that it protrudes 10 to 12 inches (30 cm).



4. Securely attach the mounting unit to the wall using fasteners suitable for the wall surface.
5. Lift the **Simplex Ethernet Clock** into place and insert the data cable into the jack located on the back of the clock.
6. Position the keyhole slots located on the rear of the clock over the mounting tabs on the clock mount.
7. Pull the clock slightly downwards until the unit is seated.

Repeat for the second clock if two clocks are being installed back-to-back.

## Section 5: Installation Wrap-up and Verification

1. Verify that each **Simplex Ethernet Clock** powers up and displays an IP Address.
2. If the clocks are statically addressed, record the IP Address and location of each clock in the table provided in Section 3 of this manual.
3. If the clocks are DHCP addressed, set and record the Host Name and location of each clock in the table in Section 2.

## Section 6: Telnet Command Map

This section covers how to configure the Simplex Ethernet Clock once it has been installed. Once you have established a Telnet connection, log on using the following User ID and Password:

User ID: **iclock**  
 Password: **timely**

After logging on, configure the clock using the following commands.

Command	Description
?	<b>Prints help</b>
Arp	<b>Displays the ARP cache</b>
config	<b>Displays the contents of the clock configuration file</b>
Date	<p><b>Allows a manual date/time set</b>  <code>date [MMDDYYYYHHMMSS]</code></p> <p>Display or set system time information in UTC.</p> <p>Setting the date must be in the form of:  <code>MMDDYYYYHHMMSS&lt;am   pm&gt;</code></p> <p>Example: to set March 17, 2001 3:35:23  <code>date 03172001033523pm</code> OR <code>date 03172001153523</code></p> <p>Time values should always be in UTC(GMT)</p>
display	<p><b>Used to Configure and display the clock's format settings.</b></p> <ul style="list-style-type: none"> <li>• <code>[-t 12 24]</code> Specify whether time is displayed in 12-hour or 24-hour format.</li> <li>• <code>[-s on off]</code> Specify whether seconds should be shown. This is only applicable on a six digit display.</li> <li>• <code>[-p on off]</code> Specify whether to display the AM/PM indicator. The indicator is a light in the upper left corner during PM hours. For a six digit display and seconds off, the seconds numerals will display A(AM) or P(PM).</li> <li>• <code>[-c on off]</code> Specify whether to display the colon between hours and minutes.</li> </ul>

dst	<p><b>dst [options]: Used to configure and display the Clock's Daylight Saving Time settings.</b></p> <p>While in Daylight Saving Time, one hour is added to the time display.</p> <ul style="list-style-type: none"> <li>• Disable the Daylight Saving Time adjustment. [dst -none]</li> <li>• Enable Daylight Saving Time for the United States or Canada using March, 2007 rules. [raw -1 8 2 2 1 1 10 2]</li> <li>• Enable Daylight Saving Time for the European Union or United Kingdom. [dst -eu]</li> <li>• For other locations use the online DST calculator at <a href="http://www.buyinova.com/calculator">www.buyinova.com/calculator</a> to compute the correct eight (8) digit DST configuration rule. [dst -raw]</li> </ul> <p>Note: In firmware Versions 1.0 and 1.1, disregard the <b>-us DST macro</b> and the <b>-raw telnet help</b>; both contain errors. Use the online DST calculator at <a href="http://www.buyinova.com/calculator">www.buyinova.com/calculator</a> to determine the correct eight (8) digit configuration rule for your location.</p>
help	<p><b>Displays help information</b></p>
ipconfig	<p><b>ipconfig [options]: Used to configure Configure or display the network settings.</b></p> <ul style="list-style-type: none"> <li>• [-d] Use DHCP to lease an IP address and retrieve network settings.</li> <li>• [-a IP] Use the specified fixed IP address. (Disables DHCP)</li> <li>• [-m mask] Set the subnet mask. (Ignored if DHCP is enabled)</li> <li>• [-g gateway] Set the gateway address. (Ignored if DHCP is enabled)</li> <li>• [-n domainname] Set domain name. (Ignored if DHCP is enabled)</li> <li>• [-p IP] Set primary DNS address. (Ignored if DHCP is enabled)</li> <li>• [-s IP] Set secondary DNS address. (Ignored if DHCP is enabled)</li> <li>• [-t dnstimeout] Set DNS timeout (0 is valid). (Ignored if DHCP is enabled)</li> </ul>

	<ul style="list-style-type: none"> <li>• [-h hostname] Set the hostname - default is iclock. (Optional)</li> <li>• [-x] Show all Interface data.</li> </ul>
log	<b>Used to enable or disable logging and to print the log file to the session screen</b>
netstat	<b>Lists all TCP connections</b>
nslookup	<b>Displays the name or IP of the given argument</b>

reboot	<b>Shuts down and cleanly reboots the system. Note that this takes tens of seconds to complete</b>
sntp	<p><b>sntp [options]: Used to configure and display the SNTP Time Server settings.</b></p> <ul style="list-style-type: none"> <li>• [-h host] Set the SNTP Time Server hostname or ip address to synch with.</li> <li>• Default host is: time.nist.gov</li> <li>• [-p port] Set the SNTP Time Server port to use. Default: 123</li> <li>• [-i interval] Set the time synch interval in seconds. Range: 60 to 604800 Default: 7200 secs</li> <li>• [-t timeout] Set the synch response timeout in microseconds. Range: 1000 to 120000 Default: 10000 ms</li> <li>• [-s] Trigger an immediate SNTP Time Synchronization attempt.</li> </ul>
stats	<b>Displays current system status</b>
timezone	<p>timezone [offset]: Used to configure and display the Clock's TimeZone settings.</p> <p>offset - The timezone offset from UTC to apply in hours:minutes. The minutes specification is optional, and defaults to 0.</p> <p>The valid offset range is: -12:59 to 12:59</p> <p>Examples: United States: East: -5, Central: -6, Mountain: -7, Pacific: -8</p>

update		<p><b>Used to update the clock firmware</b></p> <pre>update &lt;tftp_server&gt; &lt;filename&gt;</pre> <p>Updates the clock firmware.</p> <ul style="list-style-type: none"> <li>• tftp server - the server to retrieve the update file from</li> <li>• filename - the file containing the new firmware code in tbin2 format</li> </ul>
user		<p><b>Configure and display the clocks user settings.</b></p> <pre>[-p password] Sets the password to use for telnet logins.</pre>